



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/579,201

05/12/2006

Chris Udo Maeding

P29504

8924

7055 7590 09/09/2009  
GREENBLUM & BERNSTEIN, P.L.C.  
1950 ROLAND CLARKE PLACE  
RESTON, VA 20191

EXAMINER

NGUYEN, ANDREW H

ART UNIT

PAPER NUMBER

3741

NOTIFICATION DATE

DELIVERY MODE

09/09/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com  
pto@gbpatent.com

|                              |                                      |   |  |
|------------------------------|--------------------------------------|---|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/579,201 | <b>Applicant(s)</b><br>MAEDING, CHRIS UDO |  |
|                              | <b>Examiner</b><br>ANDREW NGUYEN     | <b>Art Unit</b><br>3741                   |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 10 August 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 12-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 May 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/20/07</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. In response to Applicant's arguments submitted 8/10/09, the restriction is withdrawn. Claims 12-32 are pending.

### ***Drawings***

2. The drawings are objected to because the drawings are poor quality. The shading is difficult to distinguish, the numbers are handwritten, and the lines are not straight and/or clearly defined. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and

Art Unit: 3741

informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

3. Claims 12-32 are objected to because of the following: The “bores arranged coaxially to the first outlet opening” is inappropriate because the bores themselves are not coaxial with the outlet opening. The bores are arranged in a ring (or around a circumference) that is coaxial with the opening. Appropriate correction is required.
4. Claim 19 is objected to because Applicant is defining two different sets of bores. The first set of bores should be identified separately, not referred to as simply “bores” (i.e. “injection bores”).

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 12-19, 21-25, 27-32 are rejected under 35 U.S.C. 102(b) as being anticipated by US 3,703,259 to Sturgess et al (Sturgess).

#### **Regarding claims 12 and 22:**

Sturgess teaches:

*An injection element, comprising: an inner element with a first outlet opening (Fig 7; element 36 with opening 60); an outer element (42), comprising:*

Art Unit: 3741

*at least one second outlet opening structured and arranged for receiving and injecting fuel in a combustion space, and arranged coaxially to the first outlet opening (42 has an annular opening coaxial with element 36 and receives fuel from fuel conduit 58; injects fuel into combustion space 70); and third outlet openings composed of bores structured and arranged for forming a cooling liquid film layer, wherein the bores are arranged coaxially to the first outlet opening and the at least one second outlet opening (Fig 7; bores 80 and 80' are arranged around element 42, which is coaxial with the first outlet - thus, the bores are arranged coaxially).*

Claim 22 claims the bores being on the inner element instead of the outer element. Sturgess teaches another embodiment wherein the bores are arranged on the inner element (Fig 2; bores 40 on element 36). The bores are arranged around a circumference that is coaxial with the outlet opening.

Regarding claims 13 and 14:

Sturgess teaches the outer element comprising a swirler space and a tapering area where the bores are located (see Fig 11; space 39, tapering area is the curve in the duct directly upstream of bore 80).

Regarding claim 15:

Sturgess teaches the bores arranged such that a cooling film layer and a fuel do not touch just after entry into the combustion space (see Fig 7; film layer is separate from inner element fuel just after entry into space 70).

Regarding claim 16:

Sturgess teaches an annular gap that communicates with the bores and wherein there is a swirl (39).

Regarding claims 17 and 18:

Sturgess teaches the bores distributed uniformly about the circumference of the outer element (see Fig 7; one bore at the top, one at the bottom; can also be considered a “portion”).

Regarding claims 19 and 25:

Sturgess teaches component feed bores (bores for conduit 58) such that the component feed bores communicate with the bores.

Regarding claims 21 and 27:

Sturgess teaches the outer element and inner element being coaxial (Fig 7).

Regarding claims 23 and 24:

Sturgess teaches the bores being uniformly distributed about an entire circumference of the inner element (see Figs 2 and 1; can also be considered a “portion”).

Regarding claim 28:

Sturgess teaches:

*A method of injecting fuel into a combustion chamber comprising:*

*guiding fuel into the combustion chamber through a first outlet opening (Fig 2; 60);*

*guiding fuel into the combustion chamber through a second outlet opening arranged coaxially with the first outlet opening (exit of duct 42); and*

Art Unit: 3741

*forming a cooling liquid film layer in the combustion chamber through bores arranged to coaxially surround the first outlet opening (bores 40 or 80; col 7 lines 1-4).*

Regarding claim 29:

Sturgess teaches the film directed toward the inner wall of duct 55.

Regarding claim 30:

Sturgess teaches the bores arranged in a circumference that is coaxial and surrounding the second outlet opening (see Fig 13; bores are in the duct wall 42, which is surrounding the opening of the duct).

Regarding claims 31 and 32:

Sturgess teaches creating the film from bores in the first element (see Fig 2 – bores 40) and also from the bores in the second element (see Fig 7 – bores 80).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 20 and 26 rejected under 35 U.S.C. 103(a) as being unpatentable over US 3,703,259 to Sturgess et al (Sturgess) in view of US 5,113,647 to Shekleton (Shekleton).

Regarding claims 20 and 26:

Art Unit: 3741

Sturgess teaches a gas turbine but fails to teach a rocket. However, it was well known in the art to use gas turbines to drive rockets in order to extend the rocket's range, as taught by Shekleton (col 1 lines 27-33). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the gas turbine of Sturgess in a rocket in order to extend the range of the rocket, as taught by Shekleton.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 3,913,314 to Yannone teaches a fuel injector with a first element with a fuel line (244), a second element with a fuel line (252). The second element has bores and an annular opening.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDREW NGUYEN whose telephone number is (571)270-5063. The examiner can normally be reached on Monday - Friday 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cuff can be reached on (571)-272-6778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Art Unit: 3741

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/AN/

/Michael Cuff/  
Supervisory Patent Examiner, Art Unit 3741